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CONCERNING BORDEAUX MIXTURE SPRAYS

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A radio talk prepared by Jesse H. Crenshaw, U. S. Fruit Disease Laboratory, Bureau of Plant Industry, Hood River, Oregon and delivered by Department speaker in Western Farm and Home Hour, Tuesday, April 7, 1931, through Station KGO and seven other radio stations associated with the Pacific Division, National Broadcasting Company.

You farmers in the western States are quite familiar with the use and preparation of Bordeaux Mixture sprays. But some time has passed since you were actively engaged in spraying your fruit trees and various other crops, so a brief review on this subject, together with a few pointers which you may find of value in its preparation, is timely.

Bordeaux spray was the first fungicide to be generally used. It is still among the foremost sprays to be used for that purpose. Its popularity lies in its effectiveness in preventing infection of many common diseases, the absence of injury to most hosts, its compatibility with several other sprays, and its low cost.

There has been some objections to this spray on the grounds of labor and time involved in the preparation of a good mixture. These objections have been largely overcome through use of better materials and improved methods of mixing.

To those of you who are not familiar with the preparation of Bordeaux Mixture spray, perhaps a brief statement of explanation will be found of interest. Bordeaux is prepared by allowing a solution of copper sulphate, or bluestone as it commonly is called, to react with slacked lime. Ready prepared Bordeaux has been placed on the market and is used to some extent. This preparation is a powder formed by dehydrating ordinary Bordeaux. It is ready to mix with water and spray on the plant. Another commercial product is the two-package Bordeaux Mixture, which consists of finely ground bluestone and slacked lime, also in a powdered form.

A great deal of labor, time and mess is avoided by using hydrated lime and there are some very excellent brands on the market. You will find that the chief difficulty in the use of hydrated lime lies in the fact that it deteriorates very rapidly when in contact with the air. Even when it is packed in heavy paper bags, many samples are found which are unfit for use in making spray. If there is much deterioration, the lime will be lumpy. If you use hydrated lime, protect yourself by examining each bag for lumps, especially near the sides of the container, and insist on freshly manufactured material.

Many concentrations of the chemicals used in the preparation of Bordeaux mixture have been recommended, but it is now the common practice to use equal weights of bluestone and lime. Six pounds each of bluestone and lime to fifty gallons of water in the finished spray, makes what is called 6-6-50 Bordeaux

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mixture, and is a good strength for a dormant spray. Bordeaux for use in the growing season is more often mixed a 4-4-50 combination.

A better spray is produced when one of the constituents is present in a diluted form. Under usual orchard conditions, this is most conveniently accomplished as follows:

First dissolve the bluestone, one pound to the gallon of water by suspending the bluestone in a burlap sack just below the surface of the water. Wood barrels are good containers for this purpose, or a tank may be built near the place where the spray tank is to be filled. The following quantities produce 100 gallons of spray, and may be modified to fit any other desired amount.

When the 6-6-60 mixture is desired, wet 12 pounds of lime by adding water slowly with vigorous stirring until a thin even paste is obtained. Start the water into the spray tank with the agitator running. When about twenty five gallons are in the tank, start pouring the lime paste in slowly and continue the addition of water until 88 gallons are present. With the agitator still going, add slowly 12 gallons of the bluestone solution and the spray is ready for use. For best results, the spray should be applied within a few hours after preparation.

Bordeaux mixture may be used in combination with arsenate of lead without interfering with the usefulness of either and without injury to the tree. The Bordeaux also facilitates removal of arsenic from the fruit in an acid wash. Another compatible combination is Bordeaux and oil emulsion. Danger from both copper and oil injury is lessened and the adhesiveness of Bordeaux is increased.

In conclusion -- hydrated lime is excellent for spray preparation, but the ready prepared or two package Bordeaux have objectionable features. Be sure the hydrated lime is fresh and has not been acted upon by the air. Also be sure that the bluestone is entirely dissolved before mixing with the lime solution. Remember to have one of the two chemicals in dilute solution and add the other slowly, agitating the mixture all the time.